SEQUENCE LISTING

<110> CHABRIERE, ERIC
CONTRERAS-MARTEL, CARLOS
FONTECILLA-CAMPS, JUAN

<120> NEW PHOSPHATE-BINDING PROTEIN, PHARMACEUTICAL COMPOSITIONS CONTAINING IT AND USES THEREOF

<130> 0508-1160

<140> 10/577,658
<141> 2006-05-01

<150> PCT/FR04/002797
<151> 2004-10-29

<150> FR 03/12729
<151> 2004-10-30

<160> 11

<170> PatentIn version 3.3

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<213> Homo sapiens

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1               5                  10                  15

Pro Asp Val Leu Thr Ala Gly Phe Ala Pro Tyr Ile Gly Xaa Gly Ser
            20                  25                  30

Gly Lys Gly Lys Ile Ala Phe Leu Glu Asn Xaa Tyr Asn Gln Phe Gly
        35                  40                  45

Thr Xaa Thr Thr Lys Xaa Val His Trp Ala Gly Ser Asp Ser Lys Leu
    50                  55                  60

Thr Ala Xaa Xaa Leu Ala Thr Tyr Ala Ala Xaa Lys Xaa Pro Gly Trp
65                  70                  75                  80

Gly Lys Leu Ile Xaa Val Pro Ser Val Ala Thr Ser Val Ala Ile Pro
                85                  90                  95

Phe Arg Lys Ala Gly Xaa Asn Ala Val Asp Leu Ser Val Lys Glu Leu
            100                 105                 110

Cys Gly Val Phe Ser Gly Arg Ile Ala Xaa Trp Ser Gly Ile Thr Gly
        115                 120                 125

Ala Gly Arg Ser Gly Pro Ile Gln Val Val Tyr Arg Ala Glu Xaa Ser
    130                 135                 140

Gly Thr Thr Glu Leu Phe Thr Arg Phe Leu Asn Ala Lys Cys Thr Thr
145                 150                 155                 160

Gln Pro Gly Thr Phe Ala Val Thr Thr Val Phe Ala Asn Ser Tyr Ser
                165                 170                 175

Leu Gly Leu Ser Pro Leu Ala Gly Ala Val Ala Ala Ile Gly Ser Val
            180                 185                 190

Gly Val Met Ala Ala Asp Asn Asp Val Thr Thr Ala Gln Gly Arg Ile
        195                 200                 205

Thr Tyr Ile Ser Pro Asp Phe Ala Ala Pro Xaa Leu Ala Gly Leu Xaa
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Asp Ala Thr Lys Val Ala Arg Thr Gly Lys Gly Ser Ser Ser Gly Gly
225                 230                 235                 240

Gly Ala Glu Gly Lys Ser Pro Ala Ala Ala Asn Xaa Ser Ala Ala Ile
                245                 250                 255

Ser Val Val Pro Leu Pro Ala Ala Ala Xaa Arg Gly Asp Pro Asn Val
            260                 265                 270

Trp Thr Pro Val Phe Gly Ala Val Thr Gly Gly Gly Val Val Ala Tyr
        275                 280                 285

Pro Asp Ser Gly Tyr Pro Ile Leu Gly Phe Thr Asp Leu Ile Phe Ser
    290                 295                 300

Glu Cys Tyr Ala Asn Ala Thr Gln Thr Gly Gln Val Arg Asn Phe Phe
305                 310                 315                 320

Thr Lys His Tyr Gly Thr Ser Ala Asn Asp Asn Ala Ala Ile Gln Ala
                325                 330                 335

Asn Ala Phe Val Pro Leu Pro Ser Asn Trp Lys Ala Ala Val Arg Ala
            340                 345                 350

Ser Tyr Leu Thr Ala Ser Asn Ala Leu Ser Ile Gly Asp Ser Ala Val
        355                 360                 365

Cys Gly Gly Lys Gly Arg Pro Glu
    370                 375
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<213> Homo sapiens

<400> 2

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Asp Ile Asn Gly Gly Gly Ala Thr Leu Pro Gln Lys Leu Tyr Leu Thr
1               5                   10                  15

Pro Asp Val Leu Thr Ala Gly Phe Ala Pro Tyr Ile Gly Val Gly Ser
            20                  25                  30

Gly Lys Gly Lys Ile Ala Phe Leu Glu Asn Lys Tyr Asn Gln Phe Gly
        35                  40                  45

Thr Asp Thr Thr Lys Asn Val His Trp Ala Gly Ser Asp Ser Lys Leu
    50                  55                  60

Thr Ala Thr Glu Leu Ala Thr Tyr Ala Ala Asp Lys Glu Pro Gly Trp
65                  70                  75                  80

Gly Lys Leu Ile Gln Val Pro Ser Val Ala Thr Ser Val Ala Ile Pro
                85                  90                  95

Phe Arg Lys Ala Gly Ala Asn Ala Val Asp Leu Ser Val Lys Glu Leu
            100                 105                 110
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```
Cys Gly Val Phe Ser Gly Arg Ile Ala Asp Trp Ser Gly Ile Thr Gly
        115                 120                 125

Ala Gly Arg Ser Gly Pro Ile Gln Val Val Tyr Arg Ala Glu Ser Ser
    130                 135                 140

Gly Thr Thr Glu Leu Phe Thr Arg Phe Leu Asn Ala Lys Cys Thr Thr
145                 150                 155                 160

Gln Pro Gly Thr Phe Ala Val Thr Thr Val Phe Ala Asn Ser Tyr Ser
                165                 170                 175

Leu Gly Leu Ser Pro Leu Ala Gly Ala Val Ala Ala Ile Gly Ser Val
            180                 185                 190

Gly Val Met Ala Ala Asp Asn Asp Val Thr Thr Ala Gln Gly Arg Ile
        195                 200                 205

Thr Tyr Ile Ser Pro Asp Phe Ala Ala Pro Thr Leu Ala Gly Leu Asp
    210                 215                 220

Asp Ala Thr Lys Val Ala Arg Thr Gly Lys Gly Ser Ser Ser Gly Gly
225                 230                 235                 240

Gly Ala Glu Gly Lys Ser Pro Ala Ala Ala Asn Val Ser Ala Ala Ile
                245                 250                 255

Ser Val Val Pro Leu Pro Ala Ala Ala Asp Arg Gly Asp Pro Asn Val
            260                 265                 270

Trp Thr Pro Val Phe Gly Ala Val Thr Gly Gly Gly Val Val Ala Tyr
        275                 280                 285

Pro Asp Ser Gly Tyr Pro Ile Leu Gly Phe Thr Asp Leu Ile Phe Ser
    290                 295                 300

Glu Cys Tyr Ala Asn Ala Thr Gln Thr Gly Gln Val Arg Asn Phe Phe
305                 310                 315                 320

Thr Lys His Tyr Gly Thr Ser Ala Asn Asp Asn Ala Ala Ile Gln Ala
                325                 330                 335

Asn Ala Phe Val Pro Leu Pro Ser Asn Trp Lys Ala Ala Val Arg Ala
            340                 345                 350

Ser Tyr Leu Thr Ala Ser Asn Ala Leu Ser Ile Gly Asp Ser Ala Val
        355                 360                 365

Cys Gly Gly Lys Gly Arg Pro Glu
    370                 375
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<210> 3
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<212> PRT
<213> Homo sapiens

<400> 3

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Ser Ile Asp Gly Gly Gly Ala Thr Leu Pro Glu Lys Leu Tyr Leu Thr
1               5                  10                  15

Pro Asp Val Leu Thr Ala Gly Phe Ala Pro Tyr Ile Gly Thr Gly Ser
            20                  25                  30

Gly Lys Gly Lys Ile Ala Phe Leu Glu Asn Ser Tyr Asn Gln Phe Gly
        35                  40                  45

Thr Asn Thr Thr Lys Asp Val His Trp Ala Gly Ser Asp Ser Lys Leu
    50                  55                  60

Thr Ala Ser Gln Leu Ala Thr Tyr Ala Ala Asn Lys Gln Pro Gly Trp
65                  70                  75                  80

Gly Lys Leu Ile Glu Val Pro Ser Val Ala Thr Ser Val Ala Ile Pro
                85                  90                  95

Phe Arg Lys Ala Gly Gly Asn Ala Val Asp Leu Ser Val Lys Glu Leu
            100                 105                 110

Cys Gly Val Phe Ser Gly Arg Ile Ala Asn Trp Ser Gly Ile Thr Gly
        115                 120                 125

Ala Gly Arg Ser Gly Pro Ile Gln Val Val Tyr Arg Ala Glu Val Ser
    130                 135                 140

Gly Thr Thr Glu Leu Phe Thr Arg Phe Leu Asn Ala Lys Cys Thr Thr
145                 150                 155                 160

Gln Pro Gly Thr Phe Ala Val Thr Thr Val Phe Ala Asn Ser Tyr Ser
                165                 170                 175

Leu Gly Leu Ser Pro Leu Ala Gly Ala Val Ala Ala Ile Gly Ser Val
            180                 185                 190

Gly Val Met Ala Ala Asp Asn Asp Val Thr Thr Ala Gln Gly Arg Ile
        195                 200                 205

Thr Tyr Ile Ser Pro Asp Phe Ala Ala Pro Ser Leu Ala Gly Leu Asn
    210                 215                 220

Asp Ala Thr Lys Val Ala Arg Thr Gly Lys Gly Ser Ser Ser Gly Gly
225                 230                 235                 240

Gly Ala Glu Gly Lys Ser Pro Ala Ala Ala Asn Ser Ser Ala Ala Ile
                245                 250                 255

Ser Val Val Pro Leu Pro Ala Ala Ala Asn Arg Gly Asp Pro Asn Val
            260                 265                 270

Trp Thr Pro Val Phe Gly Ala Val Thr Gly Gly Gly Val Val Ala Tyr
        275                 280                 285

Pro Asp Ser Gly Tyr Pro Ile Leu Gly Phe Thr Asp Leu Ile Phe Ser
    290                 295                 300
```

```
Glu Cys Tyr Ala Asn Ala Thr Gln Thr Gly Gln Val Arg Asn Phe Phe
305                 310                 315                 320

Thr Lys His Tyr Gly Thr Ser Ala Asn Asp Asn Ala Ala Ile Gln Ala
                325                 330                 335

Asn Ala Phe Val Pro Leu Pro Ser Asn Trp Lys Ala Ala Val Arg Ala
            340                 345                 350

Ser Tyr Leu Thr Ala Ser Asn Ala Leu Ser Ile Gly Asp Ser Ala Val
        355                 360                 365

Cys Gly Gly Lys Gly Arg Pro Glu
    370                 375
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<210> 4
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<212> PRT
<213> Homo sapiens

<400> 4

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Met Ala Lys Leu Ile Ala Leu Thr Leu Leu Gly Met Gly Leu Ala Leu
1               5                   10                  15

Phe Arg Asn His Gln Ser Ser Tyr Gln Thr Arg Leu Asn Ala Leu Arg
            20                  25                  30

Glu Val Gln Pro Val Glu Leu Pro Asn Cys Asn Leu Val Lys Gly Ile
        35                  40                  45

Glu Thr Gly Ser Glu Asp Met Glu Ile Leu Pro Asn Gly Leu Ala Phe
    50                  55                  60

Ile Ser Ser Gly Leu Lys Tyr Pro Gly Ile Lys Ser Phe Asn Pro Asn
65                  70                  75                  80

Ser Pro Gly Lys Ile Leu Leu Met Asp Leu Asn Glu Glu Asp Pro Thr
                85                  90                  95

Val Leu Glu Leu Gly Ile Thr Gly Ser Lys Phe Asp Val Ser Ser Phe
            100                 105                 110

Asn Pro His Gly Ile Ser Thr Phe Thr Asp Glu Asp Asn Ala Met Tyr
        115                 120                 125

Leu Leu Val Val Asn His Pro Asp Ala Lys Ser Thr Val Glu Leu Phe
    130                 135                 140

Lys Phe Gln Glu Glu Glu Lys Ser Leu Leu His Leu Lys Thr Ile Arg
145                 150                 155                 160

His Lys Leu Leu Pro Asn Leu Asn Asp Ile Val Ala Val Gly Pro Glu
                165                 170                 175

His Phe Tyr Gly Thr Asn Asp His Tyr Phe Leu Asp Pro Tyr Leu Gln
            180                 185                 190
```

```
Ser Trp Glu Met Tyr Leu Gly Leu Ala Trp Ser Tyr Val Val Tyr Tyr
        195                 200                 205

Ser Pro Ser Glu Val Arg Val Val Ala Glu Gly Phe Asp Phe Ala Asn
    210                 215                 220

Gly Ile Asn Ile Ser Pro Asp Gly Lys Tyr Val Tyr Ile Ala Glu Leu
225                 230                 235                 240

Leu Ala His Lys Ile His Val Tyr Glu Lys His Ala Asn Trp Thr Leu
                245                 250                 255

Thr Pro Leu Lys Ser Leu Asp Phe Asn Thr Leu Val Asp Asn Ile Ser
            260                 265                 270

Val Asp Pro Glu Thr Gly Asp Leu Trp Val Gly Cys His Pro Asn Gly
        275                 280                 285

Met Lys Ile Phe Phe Tyr Asp Ser Glu Asn Pro Pro Ala Ser Glu Val
    290                 295                 300

Leu Arg Ile Gln Asn Ile Leu Thr Glu Glu Pro Lys Val Thr Gln Val
305                 310                 315                 320

Tyr Ala Glu Asn Gly Thr Val Leu Gln Gly Ser Thr Val Ala Ser Val
                325                 330                 335

Tyr Lys Gly Lys Leu Leu Ile Gly Thr Val Phe His Lys Ala Leu Tyr
            340                 345                 350

Cys Glu Leu
        355
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<210> 5
<211> 354
<212> PRT
<213> Homo sapiens

<400> 5

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Met Gly Ala Trp Val Gly Cys Gly Leu Ala Gly Asp Arg Ala Gly Phe
1               5                   10                  15

Leu Gly Glu Arg Leu Leu Ala Leu Arg Asn Arg Leu Lys Ala Ser Arg
            20                  25                  30

Glu Val Glu Ser Val Asp Leu Pro His Cys His Leu Ile Lys Gly Ile
        35                  40                  45

Glu Ala Gly Ser Glu Asp Ile Asp Ile Leu Pro Asn Gly Leu Ala Phe
    50                  55                  60

Phe Ser Val Gly Leu Lys Phe Pro Gly Leu His Ser Phe Ala Pro Asp
65                  70                  75                  80

Lys Pro Gly Gly Ile Leu Met Met Asp Leu Lys Glu Glu Lys Pro Arg
                85                  90                  95
```

```
Ala Arg Glu Leu Arg Ile Ser Arg Gly Phe Asp Leu Ala Ser Phe Asn
            100                 105                 110

Pro His Gly Ile Ser Thr Phe Ile Asp Asn Asp Asp Thr Val Tyr Leu
        115                 120                 125

Phe Val Val Asn His Pro Glu Phe Lys Asn Thr Val Glu Ile Phe Lys
    130                 135                 140

Phe Glu Glu Ala Glu Asn Ser Leu Leu His Leu Lys Thr Val Lys His
145                 150                 155                 160

Glu Leu Leu Pro Ser Val Asn Asp Ile Thr Ala Val Gly Pro Ala His
                165                 170                 175

Phe Tyr Ala Thr Asn Asp His Tyr Phe Ser Asp Pro Phe Leu Lys Tyr
            180                 185                 190

Leu Glu Thr Tyr Leu Asn Leu His Trp Ala Asn Val Val Tyr Tyr Ser
        195                 200                 205

Pro Asn Glu Val Lys Val Val Ala Glu Gly Phe Asp Ser Ala Asn Gly
    210                 215                 220

Ile Asn Ile Ser Pro Asp Asp Lys Tyr Ile Tyr Val Ala Asp Ile Leu
225                 230                 235                 240

Ala His Glu Ile His Val Leu Glu Lys His Thr Asn Met Asn Leu Thr
                245                 250                 255

Gln Leu Lys Val Leu Glu Leu Asp Thr Leu Val Asp Asn Leu Ser Ile
            260                 265                 270

Asp Pro Ser Ser Gly Asp Ile Trp Val Gly Cys His Pro Asn Gly Gln
        275                 280                 285


Lys Leu Phe Val Tyr Asp Pro Asn Asn Pro Pro Ser Ser Glu Val Leu
    290                 295                 300

Arg Ile Gln Asn Ile Leu Cys Glu Lys Pro Thr Val Thr Thr Val Tyr
305                 310                 315                 320

Ala Asn Asn Gly Ser Val Leu Gln Gly Ser Ser Val Ala Ser Val Tyr
                325                 330                 335

Asp Gly Lys Leu Leu Ile Gly Thr Leu Tyr His Arg Ala Leu Tyr Cys
            340                 345                 350

Glu Leu
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<210> 6
<211> 354
<212> PRT
<213> Homo sapiens

<400> 6

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Met Gly Lys Leu Val Ala Leu Val Leu Leu Gly Val Gly Leu Ser Leu
1               5                  10                  15

Val Gly Glu Met Phe Leu Ala Phe Arg Glu Arg Val Asn Ala Ser Arg
            20                  25                  30

Glu Val Glu Pro Val Glu Pro Glu Asn Cys His Leu Ile Glu Glu Leu
        35                  40                  45

Glu Ser Gly Ser Glu Asp Ile Asp Ile Leu Pro Ser Gly Leu Ala Phe
    50                  55                  60

Ile Ser Ser Gly Leu Lys Tyr Pro Gly Met Pro Asn Phe Ala Pro Asp
65                  70                  75                  80

Glu Pro Gly Lys Ile Phe Leu Met Asp Leu Asn Glu Gln Asn Pro Arg
                85                  90                  95

Ala Gln Ala Leu Glu Ile Ser Gly Gly Phe Asp Lys Glu Leu Phe Asn
            100                 105                 110

Pro His Gly Ile Ser Ile Phe Ile Asp Lys Asp Asn Thr Val Tyr Leu
        115                 120                 125

Tyr Val Val Asn His Pro His Met Lys Ser Thr Val Glu Ile Phe Lys
    130                 135                 140

Phe Glu Glu Gln Gln Arg Ser Leu Val Tyr Leu Lys Thr Ile Lys His
145                 150                 155                 160

Glu Leu Leu Lys Ser Val Asn Asp Ile Val Val Leu Gly Pro Glu Gln
                165                 170                 175

Phe Tyr Ala Thr Arg Asp His Tyr Phe Thr Asn Ser Leu Leu Ser Phe
            180                 185                 190

Phe Glu Met Ile Leu Asp Leu Arg Trp Thr Tyr Val Leu Phe Tyr Ser
        195                 200                 205

Pro Arg Glu Val Lys Val Val Ala Lys Gly Phe Cys Ser Ala Asn Gly
    210                 215                 220

Ile Thr Val Ser Ala Asp Gln Lys Tyr Val Tyr Val Ala Asp Val Ala
225                 230                 235                 240

Ala Lys Asn Ile His Ile Met Glu Lys His Asp Asn Trp Asp Leu Thr
                245                 250                 255

Gln Leu Lys Val Ile Gln Leu Gly Thr Leu Val Asp Asn Leu Thr Val
            260                 265                 270

Asp Pro Ala Thr Gly Asp Ile Leu Ala Gly Cys His Pro Asn Pro Met
        275                 280                 285

Lys Leu Leu Asn Tyr Asn Pro Glu Asp Pro Pro Gly Ser Glu Val Leu
    290                 295                 300
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```
Arg Ile Gln Asn Val Leu Ser Glu Lys Pro Arg Val Ser Thr Val Tyr
305                 310                 315                 320

Ala Asn Asn Gly Ser Val Leu Gln Gly Thr Ser Val Ala Ser Val Tyr
                325                 330                 335

His Gly Lys Ile Leu Ile Gly Thr Val Phe His Lys Thr Leu Tyr Cys

            340                 345                 350

Glu Leu
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<210> 7
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<213> Oryctolagus cuniculus

<400> 7

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Met Ala Lys Leu Thr Ala Leu Thr Leu Leu Gly Leu Gly Leu Ala Leu
1               5                   10                  15

Phe Asp Gly Gln Lys Ser Ser Phe Gln Thr Arg Phe Asn Val His Arg
            20                  25                  30

Glu Val Thr Pro Val Glu Leu Pro Asn Cys Asn Leu Val Lys Gly Ile
        35                  40                  45

Asp Asn Gly Ser Glu Asp Leu Glu Ile Leu Pro Asn Gly Leu Ala Phe
    50                  55                  60

Ile Ser Ala Gly Leu Lys Tyr Pro Gly Ile Met Ser Phe Asp Pro Asp
65                  70                  75                  80

Lys Pro Gly Lys Ile Leu Leu Met Asp Leu Asn Glu Lys Asp Pro Val
                85                  90                  95

Val Leu Glu Leu Ser Ile Thr Gly Ser Thr Phe Asp Leu Ser Ser Phe
            100                 105                 110

Asn Pro His Gly Ile Ser Thr Phe Thr Asp Glu Asp Asn Ile Val Tyr
        115                 120                 125

Leu Met Val Val Asn His Pro Asp Ser Lys Ser Thr Val Glu Leu Phe
    130                 135                 140

Lys Phe Gln Glu Lys Glu Lys Ser Leu Leu His Leu Lys Thr Ile Arg
145                 150                 155                 160

His Lys Leu Leu Pro Ser Val Asn Asp Ile Val Ala Val Gly Pro Glu
                165                 170                 175

His Phe Tyr Ala Thr Asn Asp His Tyr Phe Ile Asp Pro Tyr Leu Lys
            180                 185                 190

Ser Trp Glu Met His Leu Gly Leu Ala Trp Ser Phe Val Thr Tyr Tyr
        195                 200                 205
```

```
Ser Pro Asn Asp Val Arg Val Val Ala Glu Gly Phe Asp Phe Ala Asn
    210                 215                 220

Gly Ile Asn Ile Ser Pro Asp Gly Lys Tyr Val Tyr Ile Ala Glu Leu
225                 230                 235                 240

Leu Ala His Lys Ile His Val Tyr Glu Lys His Ala Asn Trp Thr Leu
                245                 250                 255

Thr Pro Leu Lys Ser Leu Asp Phe Asn Thr Leu Val Asp Asn Ile Ser
            260                 265                 270

Val Asp Pro Val Thr Gly Asp Leu Trp Val Gly Cys His Pro Asn Gly
        275                 280                 285

Met Arg Ile Phe Tyr Tyr Asp Pro Lys Asn Pro Pro Ala Ser Glu Val
    290                 295                 300

Leu Arg Ile Gln Asp Ile Leu Ser Lys Glu Pro Lys Val Thr Val Ala
305                 310                 315                 320

Tyr Ala Glu Asn Gly Thr Val Leu Gln Gly Ser Thr Val Ala Ala Val
                325                 330                 335

Tyr Lys Gly Lys Met Leu Val Gly Thr Val Phe His Lys Ala Leu Tyr
            340                 345                 350

Cys Glu Leu Ser Gln Ala Asn
        355
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<210> 8
<211> 355
<212> PRT
<213> Rattus rattus

<400> 8

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Met Ala Lys Leu Leu Gly Leu Thr Leu Val Gly Leu Val Leu Ala Leu
1               5                   10                  15

Tyr Lys Asn His Arg Ser Ser Tyr Gln Thr Arg Leu Asn Ala Phe Arg
            20                  25                  30

Glu Val Thr Pro Val Asp Leu Pro Asn Cys Thr Leu Val Lys Gly Ile
        35                  40                  45

Glu Ala Gly Ala Glu Asp Leu Glu Ile Leu Pro Asn Gly Leu Thr Phe
    50                  55                  60

Phe Ser Thr Phe Leu Lys Tyr Pro Gly Ile Lys Ser Phe Asp Pro Ser
65                  70                  75                  80

Lys Pro Gly Lys Ile Leu Leu Met Asp Leu Asn Glu Lys Glu Pro Ala
                85                  90                  95

Val Ser Glu Leu Ala Ile Met Gly Asn Thr Leu Asp Met Ser Ser Phe
            100                 105                 110
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```
Asn Pro His Gly Ile Ser Thr Phe Ile Asp Glu Asp Asn Thr Val Tyr
        115                 120                 125

Leu Leu Val Val Ser His Pro Asp Ser Ser Ser Thr Val Glu Val Phe
    130                 135                 140

Lys Phe Gln Glu Glu Glu Arg Ser Leu Leu His Leu Lys Thr Ile Thr
145                 150                 155                 160

His Glu Leu Leu Pro Ser Ile Asn Asp Ile Ala Ala Val Gly Pro Glu
                165                 170                 175

Ser Phe Tyr Ala Thr Asn Asp His Tyr Phe Ala Asp Pro Tyr Leu Arg
            180                 185                 190

Ser Trp Glu Met Tyr Leu Gly Leu Ser Trp Ser Asn Val Val Tyr Tyr
        195                 200                 205

Ser Pro Asp Lys Val Arg Val Val Ala Asp Gly Phe Asp Phe Ala Asn
    210                 215                 220

Gly Ile Gly Ile Ser Leu Asp Gly Lys Tyr Val Tyr Ile Ala Glu Leu
225                 230                 235                 240

Leu Ala His Lys Ile His Val Tyr Glu Lys His Ala Asn Trp Thr Leu
                245                 250                 255

Thr Pro Leu Lys Val Leu Ser Phe Asp Thr Leu Val Asp Asn Ile Ser
            260                 265                 270

Val Asp Pro Val Thr Gly Asp Leu Trp Val Gly Cys His Pro Asn Gly
        275                 280                 285

Met Arg Ile Phe Phe Tyr Asp Ser Glu Asn Pro Pro Gly Ser Glu Val
    290                 295                 300

Leu Arg Ile Gln Ser Ile Leu Ser Glu Asp Pro Lys Val Thr Val Val
305                 310                 315                 320

Tyr Ala Glu Asn Gly Thr Val Leu Gln Gly Thr Thr Val Ala Ala Val
                325                 330                 335

Tyr Lys Gly Lys Leu Leu Ile Gly Thr Val Phe His Arg Ala Leu Cys
            340                 345                 350

Cys Tyr Leu
        355
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<210> 9
<211> 355
<212> PRT
<213> Mus musculus

<400> 9

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Met Ala Lys Leu Leu Ala Leu Thr Leu Val Gly Leu Val Leu Ala Leu
1               5                   10                  15
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```
Tyr Lys Asn His Arg Ser Ser Tyr Gln Thr Arg Leu Asn Ala Phe Arg
            20                  25                  30

Glu Val Thr Pro Val Glu Leu Pro Asn Cys Asn Leu Val Lys Gly Ile
        35                  40                  45

Glu Thr Gly Ala Glu Asp Leu Glu Ile Leu Pro Asn Gly Leu Thr Phe
    50                  55                  60

Phe Ser Thr Gly Leu Lys Tyr Pro Gly Ile Lys Ser Phe Asp Pro Ser
65                  70                  75                  80

Lys Pro Gly Lys Ile Leu Leu Met Asp Leu Asn Lys Lys Glu Pro Ala
                85                  90                  95

Val Ser Glu Leu Glu Ile Ile Gly Asn Thr Leu Asp Ile Ser Ser Phe
            100                 105                 110

Asn Pro His Gly Ile Ser Thr Phe Thr Asp Glu Asp Asn Thr Val Tyr
        115                 120                 125

Leu Leu Val Val Asn His Pro Asp Ser Ser Ser Thr Val Glu Val Phe
    130                 135                 140

Lys Phe Gln Glu Glu Glu Arg Ser Leu Leu His Leu Lys Thr Ile Thr
145                 150                 155                 160

His Glu Leu Leu Pro Ser Ile Asn Asp Ile Ala Ala Ile Gly Pro Glu
                165                 170                 175

Ser Phe Tyr Ala Thr Asn Asp His Tyr Phe Ala Asp Pro Tyr Leu Arg
            180                 185                 190

Ser Trp Glu Met Tyr Leu Gly Leu Ser Trp Ser Asn Val Val Tyr Tyr
        195                 200                 205

Ser Pro Asp Lys Val Gln Val Val Ala Glu Gly Phe Asp Phe Ala Asn
    210                 215                 220

Gly Ile Gly Ile Ser Leu Asp Gly Lys Tyr Val Tyr Ile Ala Glu Leu
225                 230                 235                 240

Leu Ala His Lys Ile His Val Tyr Glu Lys His Ala Asn Trp Thr Leu
                245                 250                 255

Thr Pro Leu Lys Val Leu Asn Phe Asp Thr Leu Val Asp Asn Ile Ser
            260                 265                 270

Val Asp Pro Val Thr Gly Asp Leu Trp Val Gly Cys His Pro Asn Gly
        275                 280                 285

Met Arg Ile Phe Phe Tyr Asp Ala Glu Asn Pro Pro Gly Ser Glu Val
    290                 295                 300

Leu Arg Ile Gln Asn Ile Leu Ser Glu Asp Pro Lys Ile Thr Val Val
305                 310                 315                 320
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Tyr Ala Glu Asn Gly Thr Val Leu Gln Gly Thr Thr Val Ala Ser Val
325 330 335

Tyr Lys Gly Lys Leu Leu Ile Gly Thr Val Phe His Lys Ala Leu Tyr
340 345 350

Cys Asp Leu
355

<210> 10
<211> 354
<212> PRT
<213> Mus musculus

<400> 10
Met Gly Arg Met Val Ala Leu Gly Phe Ala Gly His Arg Val Ala Leu
1 5 10 15

Leu Gly Glu Arg Phe Leu Ala Leu Ser Ser Arg Leu Lys Gly Ser Arg
20 25 30

Glu Val Glu Ser Val Asp Leu Pro Asn Cys His Leu Ile Lys Gly Ile
35 40 45

Glu Thr Gly Ala Glu Asp Ile Asp Ile Leu Pro Asn Gly Leu Ala Phe
50 55 60

Phe Ser Val Gly Leu Lys Phe Pro Gly Leu His Ser Phe Ala Pro Asp
65 70 75 80

Lys Pro Gly Gly Ile Leu Met Met Asp Leu Asp Glu Arg Pro Pro Ser
85 90 95

Leu Glu Glu Leu Arg Val Ser Trp Gly Phe Asp Leu Ala Ser Phe Asn
100 105 110

Pro His Gly Ile Ser Thr Phe Ile Asp Asp Asp Asp Thr Val Tyr Leu
115 120 125

Phe Val Val Asn His Pro Gln Phe Ser Asn Thr Val Glu Ile Phe Lys
130 135 140

Phe Gln Glu Ala Glu Asn Ser Leu Leu His Leu Lys Thr Ile Lys His
145 150 155 160

Glu Leu Leu Pro Ser Val Asn Asp Ile Ile Ala Val Gly Pro Ala His
165 170 175

Phe Tyr Ala Thr Asn Asp His Tyr Phe Ser Asp Pro Phe Leu Lys Tyr
180 185 190

Leu Glu Thr Tyr Leu Asn Leu His Trp Ala Asn Val Val Tyr Tyr Ser
195 200 205

Pro Glu Glu Val Lys Leu Val Ala Glu Gly Phe Asp Ser Ala Asn Gly
210 215 220

```
Ile Asn Ile Ser Pro Asp Lys Lys Tyr Val Tyr Val Ala Asp Ile Leu
225                 230                 235                 240

Ala His Glu Ile His Val Leu Glu Lys Gln Pro Asn Met Asn Leu Thr
                245                 250                 255

Gln Leu Lys Val Leu Gln Leu Gly Thr Leu Val Asp Asn Leu Ser Ile
            260                 265                 270

Asp Pro Ser Ser Gly Asp Ile Trp Val Gly Cys His Pro Asn Gly Gln
        275                 280                 285

Arg Leu Phe Val Tyr His Pro Asn His Pro Pro Thr Ser Glu Val Leu
    290                 295                 300

Arg Ile Gln Asn Ile Leu Ser Glu Lys Pro Ser Val Thr Thr Val Tyr
305                 310                 315                 320

Ile Asn Asn Gly Ser Val Leu Gln Gly Ser Ser Val Ala Thr Ile Tyr
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Asp Arg Lys Leu Leu Val Gly Thr Leu Tyr Gln Lys Ala Leu Tyr Cys
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Glu Leu
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<212> PRT
<213> Mus musculus

<400> 11

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Met Gly Lys Leu Val Ala Leu Thr Leu Leu Gly Ala Cys Leu Ala Leu
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Ile Gly Glu Arg Leu Leu Asn Phe Arg Glu Arg Val Ser Thr Thr Arg
            20                  25                  30

Glu Ile Lys Ala Thr Glu Pro Gln Asn Cys His Leu Ile Glu Gly Leu
        35                  40                  45

Glu Asn Gly Ser Glu Asp Ile Asp Ile Leu Pro Ser Gly Leu Ala Phe
    50                  55                  60

Ile Ser Thr Gly Leu Lys Tyr Pro Gly Met Pro Ala Phe Ala Pro Asp
65                  70                  75                  80

Lys Pro Gly Arg Ile Phe Leu Met Asp Leu Asn Glu Gln Asn Pro Glu
                85                  90                  95

Ala Gln Ala Leu Glu Ile Ser Gly Gly Leu Asp Gln Glu Ser Leu Asn
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Pro His Gly Ile Ser Thr Phe Ile Asp Lys Asp Asn Thr Ala Tyr Leu
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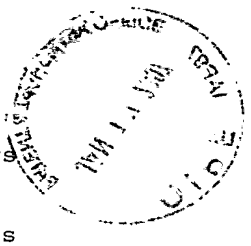

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Phe Glu Glu Gln Gln Arg Ser Leu Ile His Leu Lys Thr Leu Lys His
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Glu Leu Leu Lys Ser Val Asn Asp Ile Val Val Leu Gly Pro Glu Gln
165 170 175

Phe Tyr Ala Thr Arg Asp His Tyr Phe Thr Ser Tyr Phe Leu Val Leu
180 185 190

Leu Glu Met Ile Leu Asp Pro His Trp Thr Ser Val Val Phe Tyr Ser
195 200 205

Pro Lys Glu Val Lys Val Val Ala Gln Gly Phe Ser Ser Ala Asn Gly
210 215 220

Ile Thr Val Ser Leu Asp Gln Lys Phe Val Tyr Val Ala Asp Val Thr
225 230 235 240

Ala Lys Asn Ile His Ile Met Lys Lys His Asp Asn Trp Asp Leu Thr
245 250 255

Pro Val Lys Val Ile Gln Leu Gly Thr Leu Val Asp Asn Leu Thr Val
260 265 270

Asp Pro Ala Thr Gly Asp Ile Leu Ala Gly Cys His Pro Asn Pro Met
275 280 285

Lys Leu Leu Ile Tyr Asn Pro Glu Asp Pro Pro Gly Ser Glu Val Leu
290 295 300

Arg Ile Gln Asp Ser Leu Ser Asp Lys Pro Arg Val Ser Thr Leu Tyr
305 310 315 320

Ala Asn Asn Gly Ser Val Leu Gln Gly Ser Thr Val Ala Ser Val Tyr
325 330 335

His Lys Arg Met Leu Ile Gly Thr Ile Phe His Lys Ala Leu Tyr Cys
340 345 350

Asp Leu